attainments of the widest possible description, and scientific sympathies that are wider than possible attainments. Not only is such a man advisable for the general advancement of science—he is necessary for the particular post. An almost inevitable association with specialisation is limitation of outlook, and as the various members of the staff of the museum become more efficient in their own departments, they require more and more the assistance of a controlling and coordinating chief. Precisely as they become more distinguished in their own branches of exact knowledge, it becomes more necessary that an officer in whose wide powers they have the fullest confidence, and for the dignity and responsibility of whose post they have the highest respect, should be at their head.

There is no possible mode by which the election of a person with these high qualifications may always be secured, but at least it is certain that he should be sought for in the widest field. Britain and the Colonies, the whole Empire should be passed in review before choice is made of one to hold this arduous, dignified and supreme post. We need not doubt that the Trustees will rise to the level of their responsibilities, and we are glad to know that the President of the Royal Society is numbered among them.

NOTES.

IN honour of the centenary of the establishment of the Physical and Agricultural Society at Königsberg, Dr. Walter Simon has given the Society the sum of four thousand marks to be offered as a prize for a work on the subject of plant or animal electricity, presenting either fundamentally new aspects, or dealing with the physical cause of organic electricity, or its importance upon life in general, or upon certain functions. The competition is open to every one. The works presented may be printed or written in German, French, English, or Italian, and must be sent in before December 31, 1900. Works which are published before the end of next September will not be admitted to the competition, as the intention is to give the prize for works which are comparatively recent at the time of the award. Should no work of sufficient merit be presented the prize may be withheld, or two prizes of five hundred marks each may be awarded. The Committee appointed to make the award consists of Profs. W. Pfeffer, B. Frank, W. Kühne, E. Hering, and L. Hermann, with power to add to their number. Further information concerning the prize may be obtained from the President, or the Secretary, of the Physikalisch-ökonomischen Gesellschaft, Königsberg.

THE fourteenth annual general meeting of the Marine Biological Association was held on June 28; Prof. E. Ray Lankester, F.R.S., President, being in the chair. The Report of the Council dealt largely with the work done at the Plymouth Laboratory during the year. Reference was made to Mr. Garstang's investigations of the habits and migrations of the mackerel, to Mr. Holt's researches on the reproduction and development of fishes living in the neighbourhood of Plymouth, and their distribution at different ages, as well as to the experiments with floating bottles for determining the surface drift in the English Channel, and to the systematic investigation of the dredging and trawling grounds between the Eddystone and Start Point. Twenty-two naturalists and eight students were reported as having worked at the Laboratory since the last annual meeting, in addition to the members of the regular staff. The following were elected members of Council for the year:—President, Prof. E. Ray Lankester; Hon. Treasurer, J. A. Travers; Secretary, E. J. Allen. Council: F. E. Beddard, Prof. Jeffrey Bell, G. C. Bourne, Sir John Evans, G. H. Fowler, S. F. Harmer, Prof. Herdman, Prof. Hickson, J. J. Lister, Sir John Murray, P. L. Sclater, D. H. Scott, Prof. C. Stewart, Prof. W. F. R. Weldon.

ON June 30 the Senate of the Dublin University conferred the honorary degree of Sc.D. on Mr. R. H. Scott, Secretary to the Meteorological Council. In a humorous Latin speech the Public Orator referred to the fact that many people believed the recipient to be not only the interpreter, but also the author of the weather. Last year the French Government conferred on Mr. Scott the Order of Officer of the Legion of Honour, in recognition of valuable services rendered during many years to the French Marine, by the transmission of timely notices of impending bad weather.

MR. JOHN MILNE, writing from Shide, Isle of Wight, says:—At 6h. 48m. 37s. p.m. on June 29, preliminary tremors with a duration of nine minutes heralded the commencement of a large earthquake. The movements extended over three hours. The maximum change in inclination of the surface of the ground was between nine and ten seconds of arc. From an open diagram the period of the E.W. movements which were the most pronounced was thirteen seconds. Assuming a velocity of 2·5 km. per sec., then the length of the earth-waves would be about 32 km., and their height about 30 cm. Records were obtained at Kew, Laibach, and probably at all observing stations in the world.

THE annual general meeting of the Society of Chemical Industry will be held in Nottingham on July 13–15.

THE latest *Verhandlungen* of the Berlin Geographical Society (1898, Nos. 5 and 6) contain the addresses delivered at the special meeting held at the end of May to celebrate the seventieth anniversary of the foundation of the Society. The medals presented at the meeting were as follows:—The Humboldt medal to Dr. Nansen; the Karl Ritter medal to Dr. E. von Drygalski, for his work in Greenland and the monograph upon it; the gold Nachtigal medal to Dr. G. Schweinfurth, for his explorations in Africa; and the silver Nachtigal medal to Captain Ramsay, for his geodetic and cartographic work in German East Africa. Prof. W. M. Davis, Prof. G. K. Gilbert, M. A. de Lapparent, and Prof. Mohn were elected honorary members; and the following were elected corresponding members of the Society:—Dr. Sven Hedin, Lieut. Johansen, W. Obrutschew, Dr. Fritz Sarasin, Dr. Paul Sarasin, Captain Sverdrup, and Dr. Eduard Freiherr von Toll.

FOR several years the Royal Geographical Society, latterly in co-operation with the Royal Society, has been making strenuous efforts to influence the Government to equip an expedition for the exploration of the Antarctic, the greatest unknown area on the face of the earth. It will be within the recollection of our readers that at an enthusiastic meeting held at the Royal Society last February, at which Dr. Nansen and Prof. Neumayer, besides many distinguished British men of science, were present, the great value of the results to be derived from an Antarctic expedition was clearly explained. Previous to this, in October last, the President of the Royal Geographical Society wrote to the Prime Minister urging that an Antarctic expedition should be undertaken either by Her Majesty's Government or with the aid and sanction of the State. The President pointed out in strong terms that it was the duty of England to undertake the further exploration of the greatest unknown region of the globe, and so complete the work done by Ross fifty years ago. The reply received at the time was sympathetic and gave reason to hope that the final reply, which was to be sent at a later date, would be favourable. The final reply has just been received from Lord Salisbury, and in it "his lordship expresses his regret that he is unable, under existing circumstances, to hold out any hope of Her Majesty's Government embarking upon an undertaking of such magnitude." Moreover, it is stated in the reply that at the recent conference of Premiers held at Melbourne in March last, it was resolved that the Australasian Colonies should take no joint action in the matter of Antarctic exploration. In these circumstances, the Council of the Royal Geographical Society have decided to endeavour to obtain the funds for an expedition to be sent out under the Society's auspices. They have authorised the President to take steps to obtain subscriptions to the amount of not less than 50,000*l.*, and the Society itself will contribute 5000*l.* It is much to be regretted that the Government has been unable to give practical support to the enterprise, both in the interests of science and from the point of view of our national credit, but it will be still more lamentable if the expedition has to be abandoned altogether on account of want of funds. The amount required to equip and despatch the expedition is not excessive, and we trust it will soon be raised, so that the Antarctic area may be efficiently surveyed from many scientific aspects.

THE proposed removal of the Museum of Practical Geology from Jermyn Street to South Kensington, recommended by the Committee of the House of Commons on the Museums of the Science and Art Department, has met with adverse criticism from geologists and others. A circular inviting signatures to a memorial to the President and Council of the Geological Society, setting forth the reasons against the transference of the Museum to South Kensington, was recently sent to all Fellows of the Society resident in Great Britain and Ireland. The memorial pointed out that the Museum at present occupies a convenient central position, easy of access for engineers, architects, and others who make use of its collections, in proximity to most of the learned societies, and adjoining the offices of the Geological Survey. The Council of the Geological Society was therefore asked "to impress upon Her Majesty's Government that the suggested discontinuance of occupation and removal of the collections would seriously impede the progress of science, especially on its economic side." The memorial has been signed by about five hundred Fellows of the Society and was presented to the Council, a resolution passed at the recent meeting of the South-Eastern Union of Scientific Societies, and having the same object, being considered at the same time. Though the Council did not see their way to comply with the request of the memorial, they expressed the opinion that the question of the removal required more consideration than it appeared to have received. The memorial and the facts of the case were then brought to the notice of Lord Salisbury, who has promised to give attention to the whole question. There the matter at present stands, but it is to be hoped that no final decision will be arrived at until it has been given most careful consideration and more evidence taken with reference to it than has yet been laid before the Select Committee, in whose report the removal of the collections is suggested.

IT has already been announced that the Society of Arts' Albert Medal for this year has been awarded to his Excellency Dr. Robert Bunsen, the veteran professor of chemistry at the University of Heidelberg. At the annual meeting of the Society held on Wednesday of last week, the work of this eminent investigator was referred to by the Council in the following words:—Amongst the numerous and important scientific discoveries which have rendered the name of Bunsen famous wherever science is valued, perhaps the most striking is the one in which he was associated with his distinguished colleague, Prof. Kirchhoff, viz. spectrum analysis, a discovery which has shed a new and unexpected light on the composition of terrestrial matter, and has enabled us to obtain a distinct knowledge of the chemical composition of sun and stars. The contributions which Bunsen has made in the application of chemistry and physics to the arts and manufactures are of the utmost value, and their importance may be measured by two out of many instances. The Bunsen battery was, until the introduction of the dynamo, the cheapest source of electricity; the Bunsen gas-burner, by which a non-luminous, smokeless, but highly heated flame is obtained, is now not only indispensable in all laboratory work, but is used for heating purposes in thousands of houses and manufactories, and for illumination, by the incandescent system, in millions of lamps. Beyond these Bunsen's contributions to the sciences of chemistry and physics have been of the highest importance; but, perhaps, the greatest benefit which he has conferred through a long life devoted to the advancement of science, has been the influence which he has exerted as a teacher.

THE Paris correspondent of the *Chemist and Druggist* makes the following announcement:—"The gift of 2,000,000 francs (80,000*l.*), made by Baroness Hirsch some time ago to the Pasteur Institute, or rather about two-thirds of it, is to be devoted to building and fitting up a large model biological institute in the rue Dutot, Paris, opposite the Pasteur Institute. The interest of the balance of the money will be devoted to working expenses, though additional money will be required for the latter purpose. The ground on which the new building is to be erected was left as a legacy to the Pasteur Institute by another lady a few years ago. The plans for the Biological Institute have been drawn up by the directors and professors of the parent establishment with the aid of their architect. A hospital will be attached to it, where patients attacked by maladies to which Dr. Roux gives special attention will be treated. M. Duclaux will be the director of the new institute, in addition to that bearing Pasteur's name, while the laboratories of biological chemistry will be under the care of M. Gabriel Bertrand. It is hoped to have the building ready by 1900, and most likely the lectures, &c., connected with biology will in due course be transferred to the rue Dutot from the Sorbonne."

IT has been agreed by the Executive Committee that ladies attending the fourth International Congress of Zoology at Cambridge in the company of a member may become Associates on the payment of 10*s.* This payment will entitle them to attend the general and sectional meetings, and the receptions held during the meeting of the Congress at Cambridge.

THE septic treatment of sewage, to which reference was made in NATURE of November 4, 1897, has so far received the sanction of the Local Government Board, that they have authorised the borrowing of the money required for extending the experimental tanks at Exeter. The Board, however, do not yet seem to be satisfied that this system is capable of producing a thoroughly satisfactory effluent, as it has been required that the minimum area of land usually allowed shall be provided for the completion of the purification. From an article in *The Engineer* of June 17 it appears, however, that this system has been in successful operation in this country for several years, and that for an original outlay of 300*l.* and an annual cost of 50*l.* the sewage from the town of Winsford, in the Salt District, containing 12,000 inhabitants, has been sufficiently purified to flow into the river Weaver without causing any pollution. Under all the existing systems that are in operation, one of the chief difficulties is the disposal of the sludge which is left in the settling tanks, but under the septic treatment this difficulty disappears. The process at Winsford is simplicity itself. The works were constructed about twenty years ago, and have been in continuous operation ever since. They consist of a series of tanks containing about seven feet of ashes and clinkers, through which the sewage flows. Each set of tanks is used for a week, and then allowed a rest. The sludge settles in the first tank, and, owing to the action of the microbes, the residue, when taken out and placed on the banks, cannot be distinguished from ordinary soil. The quantity is so small that, although none has been removed, there is no accumulation at the present time. The water in the river Weaver, into which the effluent flows, has from time to time been analysed, but no traces of pollution have been detected, and there is no discoloration.

THE Deutsche Seewarte, in connection with the Danish Meteorological Institute, has issued daily synoptic weather charts for the North Atlantic Ocean and adjacent continents, for a year ending November 1893. These charts give a complete representation of the state of the weather existing at 8h. a.m. each day, and clearly show the movements of the low-pressure areas and the positions of the barometric maxima, compiled from all available data from land and sea. Synoptic charts for the above district have now been regularly issued (including those for the same district, issued by our own Meteorological Office for 1882–3) since the latter part of 1873, and contain the most necessary materials for elucidating weather changes and for improving weather predictions. The charts are accompanied by a separate *Quarterly Weather Review* explaining the various conditions, and illustrated by charts relating specially to each period during which any particular system was maintained, and clearly exhibiting the tracks of the various storms or low-pressure areas from west to east, or north-east. Great credit is due to the German and Danish Institutes for the persistency with which this most important work is carried on, as, although some copies are sold, there must be a considerable expense thrown upon them, both as regards the production of the charts and their subsequent discussion; but the value of the work to meteorological science is beyond question.

THE Director of the Madrid Observatory, Sr. M. Merino, has published the results of the meteorological observations made there during thirty-five years (1860–94). The tables, which have been very carefully prepared and arranged by Sr. F. Cos, show *inter alia* the monthly and yearly values of all the principal elements and the daily means for each five years. This long and laborious work is the continuation of that published in 1893, which contained the results of thirty years' observations. The absolute maximum temperatures of the various years range from 98°·6 to 111°·7, and the absolute minima from 25°·5 to 9°·5. The average yearly rainfall amounts to 16·5 inches, but the quantity varies very considerably in different years.

THE study of the mathematical theory of electricity would appear to be becoming popular in Japan, to judge from the *Kiji* of the Tōkyō Mathematico-Physical Society. In two numbers now before us (vol. viii. parts 1, 2) we find no less than three papers on this subject: one by H. Nagaoka, on the strain of an iron ring by magnetisation; one by E. Sakai, on the distribution of electricity on two excentric cylinders; and finally an essay by Dr. S. Kimura, on the magnetisation by induction of a rotating sphere or spheroid under a solenoidal distribution of magnetic force.

"THE disruptive discharge in air and liquid dielectrics" forms the subject of a dissertation by Mr. T. W. Edmondson, of the University of New York (*Physical Review*, vi. 2). From experiments with different sized spheres immersed in different liquids, Mr. Edmondson finds that the curves representing the relation between the potential difference and the sparking distance are in general approximately hyperbolas becoming practically straight lines for spark-lengths of over 3 mm. While a smaller difference of potential is necessary to produce a discharge through a given distance for large spheres than for small ones when the spheres are close together, for longer distances the dielectric is electrically stronger for large than for small spheres. Mr. Edmondson gives a table of the dielectric strengths of various substances; those for air, obtained with spheres, being considerably higher than that obtained by Macfarlane for planes. Both electrostatic and alternating discharges are considered.

A USEFUL summary of the present state of knowledge of the properties of Becquerel rays, in relation to Röntgen rays, is given by Mr. Oscar M. Stewart in the April number of the *Physical Review*. With reference to these radiations from various chemical substances, it is concluded: "As these rays can be reflected, refracted and polarised, there can be no reasonable doubt that they are transverse ether waves. Interference alone is left to be established to confirm this, but owing to the extreme feebleness and short wave-length it is doubtful whether it can be shown. . . . These rays, like X-rays, are not homogeneous. They have all the properties that X-rays possess, such as photographic action, exciting fluorescence, making gas conductors, and exciting thermo-luminescence. . . . The similarity in the behaviour of the X-rays and Becquerel rays certainly presents a strong argument in favour of the theory that X-rays are short transverse ether waves." In connection with this subject, it should be mentioned that the articles which have appeared on the subject of the discharge of electrified bodies by X-rays are briefly reviewed by Mr. Clement D. Child in Nos. xxiii. and xxix. of the *Physical Review* (1897), and supplemented with some results of his own upon the effect on the rate of discharge produced by a variation in the density of the air surrounding the electrified body.

PAPERS on miscellaneous results of recent work of the Division of Entomology of the U.S. Department of Agriculture appear in *Bulletin* No. 10 (new series). The articles are of interest to economic entomologists, and of importance to agriculturists and fruit-growers. Among the general notes is one on a lead-boring insect. Examination of a lead tank which had leaked showed that the metal had been pierced with holes by the larvæ of some species of beetle of the genus Lyctus. This is the third case which has come under Dr. L. O. Howard's notice of insects which bore into lead. In one case a Cossus larva bored its way through a large leaden bullet, which was embedded in an oak tree in which the larva was living; and in another, a coleopterous larva bored its way through a piece of lead piping.

AN important memoir, containing the results of a detailed craniological investigation, has just been published in the *Transactions* of the Wagner Free Institute of Science of Philadelphia (vol. v.). The memoir is the last of the late Dr. Harrison Allen's many contributions to the knowledge of organic forms and their modifications, and entitled "A Study of Hawaiian Skulls." The concluding remarks express clearly the scope of the contents; they are as follows:—"In the study just completed I have described a new graphic method of collating measurements. I have endeavoured to establish the proposition that the difference between the crania called here the 'cave and the coast crania' are not due to race but to methods of living, and in some degree to differences of mental strength in individuals. The cave series represents the dominating and superior type, and the coast series the weak and conquered type. I have suggested that some of the contrasts that obtain in the proportions of the face of the crania after European contact may be traced to the impress made upon the individual by the action of the exanthematous diseases. I remain of the opinion that the interest attached to the study of the human skull is not confined to attempting to limit race, but to the study of the effects of nutritive and even morbid processes upon the skull form." Dr. D. J. Brinton prefixes a short appreciative note to the memoir, and points out that the conclusion as to the influence of methods of living in producing differences between crania is most important.

"A Catalogue of Earthquakes on the Pacific Coast, 1769 to 1897," by Dr. E. S. Holden, forms No. 1087 of "Smithsonian Miscellaneous Collections," vol. xxxvii. In compiling this catalogue, Dr. Holden had in view the determination of the general facts as to distribution of earthquake shocks, as to topographic areas, as to time, intensity, &c., and also the characteristics of particular shocks. The result is a history of earthquakes on the Pacific Coast, the disturbances being arranged chronologically and briefly discussed in an introduction. As many of the earthquakes of California are very local phenomena, which depend upon local causes for their production, no very definite conclusions can be found with reference to them. An arrangement of the shocks according to seasons shows that for California, Oregon, and Washington at large, shocks occur with about equal frequency in the wet and in the dry seasons. The records indicate, however, that in San Francisco and San José shocks are more frequent in the rainy season than in the dry. Dr. Holden suggests that, in any future study of California earthquakes, special regions ought to be selected for examination, with the object of determining the origin of the local shocks. The data he has obtained seem to indicate that the greater number of California earthquakes have been the result of faulting in underlying strata, rather than due to volcanic causes directly. With regard to damage to life and property caused by the earthquakes recorded, it is concluded that the earthquakes of a whole century in California have been less destructive than the tornadoes or floods of a single year in other parts of the States.

We have received the Summary Report of the Geological Survey of Canada for 1897, by Dr. George M. Dawson, Director, and it is interesting to note that there is a great and increasing demand for the Survey publications. It is, of course, not surprising to learn that the report on the Yukon district is practically exhausted, and that the text and maps will be revised and reprinted. Gold mining was first attempted in the Yukon region in 1880, and in 1887 Dr. Dawson conducted an exploration of it; his forecast of the mining prospects has been amply verified by the recent discoveries in the Klondike district. The work of the Survey has so increased that there is great need of new, fireproof, and more spacious quarters; but at present the economic and scientific value of the collections and records does not appear to be fully appreciated by the Canadian Parliament. A quotation is made from an article in Nature, written by a geologist who attended the meeting of the British Association in Toronto, and this pointed out how well the work of the Survey is appreciated by the people for whom it is primarily intended. The results of experimental borings carried out by the Survey in Northern Alberta in search of mineral oils are duly recorded. There are useful notes on the occurrence of corundum, and of observations on it by Mr. W. F. Ferrier. Coal, peat-bogs, building-stones and various metals come in for a share of attention, as well as the soils and agricultural prospects. Various analyses and assays have been made. The purely scientific aspects of geology are by no means neglected, and we have accounts of the igneous origin of fundamental gneiss, and of various formations of all ages up to the glacial drifts and recent accumulations. Reports on the palæontologica work are furnished by Mr. Whiteaves. During the year nineteen new maps were published; so it is evident that the Survey is prosecuted with vigour and enthusiasm, and we only hope that Dr. Dawson's desire for a more appropriate establishment may be granted.

The seventeenth annual Report of the United States Geological Survey, recording in full the work done under the direction of Mr. C. D. Walcott during the period 1895–96, has lately reached us. It is divided into three parts, which are published in two bulky and two smaller volumes, and together these comprise lxviii and 2998 pages of letter-press. The information, as usual, is of the most varied character. There is the general report of the Director; an account of magnetic declination in the United States, by Henry Gannett; further contributions to the geology of the Sierra Nevada, by H. W. Turner; a geological reconnaissance in North-western Oregon, by J. S. Diller; and a discussion of the faunal relations of the Eocene and Upper Cretaceous on the Pacific Coast, by T. W. Stanton. In addition there are reports on the coal and lignite of Alaska, on the Uintaite or Gilsonite (a variety of asphalt) in Utah; on the brick-clays of Rhode Island; on the gold-quartz veins of Nevada city; on the geology of Silver Cliff and the Rosita Hills of Colorado; on the Tennessee phosphates; and on various underground and artesian waters. The mineral statistics are full and elaborate, and it is interesting to note that Fuller's earth has been discovered in Florida, Georgia, Virginia, and South Dakota. The illustrations are many, and include figures of Eocene and Upper Cretaceous Mollusca, maps, sections, pictorial views, and plates showing structure of ores, eruptive and metamorphic rocks.

The following important additions to our knowledge of the flora of the American continent and of Australia have reached us:—Contribution No. 3 to the coastal and plain flora of Yucatan, by D. C. F. Millspaugh, from the Field Columbian Museum, Chicago; Contributions from the Gray Herbarium of Harvard University (No. 13), by Mr. B. L. Robinson, comprising a revision of the North American and Mexican species of *Mimosa* (67 species), and of the North American species of *Neptunia;* five instalments of Contributions to the flora of Queensland, by Mr. F. M. Bailey (these, not being numbered, are difficult of reference).

Tourists who are contemplating a visit to the north of Ireland should procure a copy of the Official Guide to the Belfast and Northern Counties Railway, Giant's Causeway, and Antrim Coast. The volume is a handy and exceptionally interesting guide-book, containing, in addition to the usual information, a section upon scenery and geology in County Antrim, by Prof. G. A. J. Cole, botanical notes by Mr. R. Lloyd Praeger, notes on the antiquarian remains of Antrim, by Mr. W. Gray, and numerous reproductions of photographs.

The initiation ceremonies of natives of Australia have in recent years received the attention of a number of anthropologists. The latest paper upon the subject deals with the initiation ceremonies of the Arunta tribe, Central Australia, and is by Prof. Baldwin Spencer and Mr. F. J. Gillen. (*Proceedings* of the Royal Society of Victoria, vol. x., issued May 1898). It may be recalled that an account of the Engwurra ceremony as performed by the Arunta tribe appeared in Nature a year ago (vol. lvi., p. 136). The Engwurra is not passed through until probably the native has reached the age of at least twenty-five or even thirty; but this final and impressive ceremony is preceded by others, beginning at about the age of ten or twelve, through which practically every Australian native has to pass before he is admitted to the secrets of the tribe and regarded as a fully-developed member of it. It need hardly be pointed out that authentic records, such as are given in the present paper, of ceremonial rites of aboriginal tribes are of increasing scientific value, even though the significance of the rites is not understood. Among other subjects of papers in the volume of *Proceedings* referred to above are:—Entropy meters, a method of determining the specific heat of a liquid; the geology of Coimaidai, with appendices on the marsupial bones of the Coimaidai limestone and the graptolites of the district; the structure of an Australian land leech (*Philæmonpunge*, n.s.); and a catalogue of the marine shells of Victoria.

In the current number of the *Berichte*, J. H. Aberson describes a very interesting substance, which appears to be a new isomeride of malic acid. This compound occurs in many species of Crassulaceæ, and has the composition, molecular weight and chemical composition of malic acid, $C_4H_6O_5$, but differs from this very markedly in its behaviour when heated. Ordinary malic acid under these circumstances yields water and fumaric acid or maleic anydride, whereas the new isomeride is converted into a volatile double anhydride or malide, $C_8H_8O_8$, formed from two molecules of the acid, small quantities of fumaric and maleic acids and other products being also formed. The new acid is, moreover, more strongly dextro-rotatory than ordinary malic acid, and yields salts which differ from the malates in several important particulars. The author considers that the new compound is geometrically isomeric with ordinary dextro-malic acid, but that in it the free rotation of the two carbon atoms has in some way been arrested, so that the atoms and groups attached to these are not in that "most favoured" position, by the aid of which Wislicenus has been able to formulate so clearly the production of fumaric and maleic acids from the ordinary acid. It has not, however, been hitherto found possible to convert the new acid into the better-known modification, although the author promises to describe at an early date a method for its synthetical production. If this new form of the acid really has the configuration assigned to it, further research will no doubt reveal the corresponding lævo-rotatory and inactive (racemic) acids, the number of isomeric malic acids being thus brought up to six.

The additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus*, ♂) from India, presented by the Lady Tichborne; a Pig-tailed Monkey (*Macacus nemestrinus*, ♀) from Java, presented by Mr. J. Ratillon; two Rhesus Monkeys (*Macacus rhesus*, ♂ ♀), a Bonnet Monkey (*Macacus sinicus*, ♀) from India, presented by the Parks Committee, Tynemouth; a Lioness (*Felis leo*) from Somaliland, presented by Mr. Henry S. H. Cavendish; a Mouflon (*Ovis musimon*, ♂) from Corsica, presented by Mr. H. Brinsley Brooke; a Jackal Buzzard (*Buteo jacal*) from South Africa, presented by Mr. J. E. Matcham; a Royal Python (*Python regius*) from West Africa, presented by Mr. W. G. Woodrow; a Chimpanzee (*Anthropopithecus troglodytes*, ♀) from West Africa, a Brush Turkey (*Talegalla lathami*) from Australia,, a Glaucous Macaw (*Anadorhynchus glaucus*) from Paraguay, a Yellow-crowned Penguin (*Eudyptes antipodum*), a Thick-billed Penguin (*Eudyptes pachyrhynchus*) from New Zealand; six Argentine Tortoises (*Testudo argentina*) from Patagonia, a Nilotic Trionyx (*Trionyx triunguis*) from North Africa, a White-throated Monitor (*Varanus albigularis*) from South Africa, four Wagler's Terrapins (*Hydraspis wagleri*) from Brazil, deposited; a Lesser Koodoo (*Strepsiceros imberbis*, ♂), a Beisa Antelope (*Oryx beisa*, ♂), two Hagenbeck's Jackals (*Canis hagenbecki*) from Somaliland, three Japanese Teal (*Querquedula formosa*, ♂ ♀ ♀) from North-east Asia, two Black-winged Pea-fowl (*Pavo nigripennis*) from Cochin China, a Rufous Rat Kangaroo (*Æpyrymnus rufescens*, ♂) from New South Wales, purchased; two Bennett's Wallabies (*Macropus bennetti*, ♂ ♀), a Brush-tailed Kangaroo (*Petrogale penicillata*, ♀), a Japanese Deer (*Cervus sika*, ♀), born in the Gardens, five Upland Geese (*Chloephaga magellanica*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

Comet Perrine (June 14).—The following is a continuation of the ephemeris from last week. The comet is rapidly decreasing its northern declination and becoming brighter.

1898.	R.A. (app.) h. m. s.	Decl. (app.) ° ′	log *r*.	log Δ	Br.
July 7	5 44 14	+48 16·7			
8	49 48	47 28·6			
9	55 18	46 38·4	9·8958	0·1744	4·02
10	6 0 45	45 45·8			
11	6 9	44 51·0			
12	11 30	43 53·9			
13	6 16 49	+42 54·5	9·8435	0·1585	5·51

Latitude Variation in a Rigid Earth.—In an article contributed to the *Physical Review* (vol. vi. No. 3), Prof. Henry Crew discusses the movements of the earth's axis in terms of elementary dynamics, and calls attention to the "beautiful, but much neglected, top which Maxwell first spun at Edinburgh some forty years ago." Besides giving an excellent illustration of the top itself, Prof. Crew adds also an account of the adjustments that are necessary for its accurate working, and describes the various phenomena which it will illustrate, such as nutation and precession, statical stability and dynamical instability conferred by rotation, variation of latitude, and effect of polar ice-caps. In the mathematical treatment above referred to, Prof. Crew recalls the fine illustration employed by Maxwell, that the motion of the earth is practically that of a circular hoop rolling, but not slipping, on a stick of circular cross section, the word "practically" being used as the earth, in sections parallel to the equator, is not circular but elliptical. The theory here expounded shows that this hoop does represent the motion of a freely rotating rigid solid fixed at its centre of mass. Prof. Davidson's extensive and accurate series of observations (*Astr. Journal*, No. 323) receive here due attention.

Conference of Astronomers at Harvard.—In consequence of the great success of the conference of the astronomers held last year at the Yerkes Observatory, it is proposed to hold a second meeting this year, and further to continue them annually. As the American Association for the Advancement of Science will meet in Boston on August 22, on the occasion of the fiftieth anniversary of its foundation, it has been decided to hold the conference at the Harvard College Observatory on August 18, 19 and 20. The circular, which we have received from Prof. E. C. Pickering, tells us that the proposed plan will enable visiting astronomers to attend this meeting, and those who are members of the Association can avail themselves of the special rates which have been obtained from hotels and railroads. Those who intend to go are requested to send in their names, and titles of papers if they intend to read any. Besides showing the work of the various departments of the observatory, excursions will be planned to various neighbouring scientific institutions, including the Blue Hill Meteorological Observatory, the Massachusetts Institute of Technology, the laboratories of Harvard College, &c.

A Fine Collection of Meteorites.—There has just been published a most interesting and valuable catalogue and guide to the collection of meteorites in the Paris Natural History Museum. Prof. Stanislas Meunier, who occupies the chair of Geology, tells us in his preface that in 1861 they only possessed 64 meteorites, and the first published catalogue comprised 86 falls. In 1864 the number rose to 160, and in 1889 the list consisted of 367 distinct meteorites. Since that date the museum has obtained possession of numerous new additions, and the present catalogue deals with 463 distinct falls. The catalogue itself is very well arranged. We have first a list of the different types which up to the present are known and exhibited in the museum, sections of which are copiously illustrated; we next come to the arrangement of the individual meteorites, followed by an excellent bibliographical index. The final list is arranged chronologically, and gives the date and locality of fall, type, weight, and other interesting data.